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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,045	06/20/2003	Kiyoshi Takahashi	5077-000170	6013

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EXAMINER

COLON, GERMAN

ART UNIT PAPER NUMBER

2879

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/600,045	TAKAHASHI ET AL.	
	Examiner	Art Unit	
	German Colón	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☒ Claim(s) 4,5 and 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6/20/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claim 16 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). For the purpose of examination, claim 16 was considered to be dependent from claim 12.

2. Claims 4 and 5 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 4 refers to the heat retaining film *not* being formed in the luminous bulb, however, claim 1 requires said heat retaining film being formed in the luminous bulb. For the purpose of examination claim 4 would be considered as comprising all the limitations from claim 1, except for the heat retaining film being formed in the bulb.

Claim 5 is objected for its dependency status from claim 4

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 13, 17 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Seki et al. (US 2001/0048273).

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Regarding claims 13 and 17, Seki discloses a high pressure (HP) mercury lamp (see at least Figs. 1A and 2) and a reflecting mirror **60**, the HP lamp comprising a luminous bulb **10** in which at least mercury is enclosed inside the bulb, and a pair of sealing portions **20,20'** that retain airtightness of the luminous bulb, wherein

an amount of the enclosed mercury is 230 mg/cm^3 or more based on a volume of the bulb (see Col. 1, line 37); and

the high pressure mercury lamp further comprising heat-retaining means **40** for retaining heat in the luminous bulb.

Regarding claim 19, Seki discloses the reflecting mirror being an ellipsoidal or paraboloidal reflecting mirror having a front opening in an emission direction (see paragraph [0053], lines 17-18, in view of Figs. 2, 3, 6 and 7).

5. Claims 17 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeuti et al. (US 6,211,616).

Regarding claims 17 and 19, Takeuti discloses a lamp comprising a HP mercury lamp (see at least Fig. 1) and a reflecting mirror **9**,

wherein an amount of the enclosed mercury is 230 mg/cm^3 or more (see Col. 3, lines 5-6), the reflecting mirror having an ellipsoidal or paraboloidal shape, wherein said reflecting mirror serves as the heat-retaining means.

Claim Rejections - 35 USC § 103

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6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7, 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko et al. (EP 0 903 771) in view of Bergman et al. (US 5,610,469).

Referring to claim 7, Kaneko discloses a HP mercury lamp (see at least Fig. 1) comprising a luminous bulb in which at least mercury 5 is enclosed, and a pair of sealing portions 2 that retain airtightness of the luminous bulb,

wherein at least one of the sealing portions has a first glass portion extending from the luminous bulb (see Fig. 1 in view of Fig. 3) and a second glass portion 4 (see also Figs. 11 and 14) provided in a portion inside the first glass portion, and the one of the sealing portions has a portion to which a compressive stress is applied [due to the different glasses, see Col. 8, lines 2-5]. Kaneko is silent regarding the limitation of “an outer tube made of translucent material is provided around the bulb such that the outer tube is apart from the luminous tube”.

However, Bergman discloses a HP lamp including an outer tube made of translucent material provided around said HP lamp, and teaches said outer tube to improve the safety of the lamp by acting as a containment device in the event that the HP lamp shatters, while increasing the efficiency of the lamp by reflecting the heat produced by the lamp (see Col. 1, lines 31-36 and 44-47; and Col. 4, lines 62-64). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an outer tube to the HP lamp of Kaneko, with the purpose of improving the safety of the lamp by acting as a containment device in the

event that the HP lamp shatters, while increasing the efficiency of the lamp by reflecting the heat produced by the lamp.

Referring to claim 8, Kaneko-Bergman discloses an infrared reflecting film formed in the outer tube (see '469, Col. 4, lines 62-64).

Referring to claim 11, Kaneko discloses a metal portion being in contact with the second glass portion, the compressive stress being applied at least in a longitudinal direction of the sealing portions,

the first glass containing 99 wt% of SiO₂, and

the second glass containing SiO₂ and at least one of 15 wt% or less of Al₂O₃ and 4 wt% or less of B (see Col. 8, lines 2-5, in view of the composition of Vycor® glass).

8. Claims 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathews et al. (US 5,598,063) in view of Bergman et al. (US 5,610,469).

In regards to claim 7, Mathews discloses a HP mercury lamp (see at least Fig. 1) comprising a luminous bulb 14 in which at least mercury is enclosed, and a pair of sealing portions 16,18 that retain airtightness of the luminous bulb,

wherein at least one of the sealing portions has a first glass portion extending from the luminous bulb (see Figs. 2-4) and a second glass portion 34 (and 50) provided in a portion inside the first glass portion, and the one of the sealing portions has a portion to which a compressive stress is applied [due to the different glasses, see Col. 5, lines 3-9]. Mathews is silent regarding the limitation of "an outer tube made of translucent material is provided around the bulb such that the outer tube is apart from the luminous tube".

However, Bergman discloses a HP lamp including an outer tube made of translucent material provided around said HP lamp, and teaches said outer tube to improve the safety of the lamp by acting as a containment device in the event that the HP lamp shatters, while increasing the efficiency of the lamp by reflecting the heat produced by the lamp (see Col. 1, lines 31-36 and 44-47; and Col. 4, lines 62-64). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an outer tube to the HP lamp of Mathews, with the purpose of improving the safety of the lamp by acting as a containment device in the event that the HP lamp shatters, while increasing the efficiency of the lamp by reflecting the heat produced by the lamp.

In regards to claim 9, Mathews discloses a pair of electrode rods **40** being opposed to each other in the luminous bulb,

at least one of the pair of electrode rods being connected to a metal foil **30**, and

the metal foil being provided in the sealing portion, and at least a portion of the metal foil is positioned in the second glass portion (see Fig. 5).

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mathews-Bergman as applied to claim 9 above, and further in view of Obara (JP 62-262355).

Mathews-Bergman discloses the claimed invention except for the limitation of a coil having at least one metal selected from the group consisting of Pt, Ir, Rh, Ru and Re being wound at least in a portion of the electrode rod that is buried in the at least one of the sealing sections.

However, Obara discloses a lamp having a coil of Ru wound around a portion of the electrodes buried in the sealing portions (see Fig. 1), wherein the Ru serves to improve the starting characteristics and luminous flux properties (see Abstract). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a coil of Ru wound around a portion of the electrode rod in order to improve the starting characteristics and luminous flux properties.

10. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seki et al. (US 2001/0048273) in view of Kaneko et al. (EP 0 903 771).

Regarding claim 4, Seki discloses a HP mercury lamp comprising a luminous bulb and a pair of sealing portions (see at least Fig. 1A), and

a heat-retaining film 40 made of an insulating material or a heat-retaining material being provided at least in a portion of the pair of sealing portions, and an end face of the heat retaining film on a side of the luminous bulb being positioned apart from a border between the at least one of the sealing portions and the luminous bulb by 1mm or more. Seki is silent regarding the limitation of “at least one of the sealing portions has a first glass portion extending from the luminous bulb and a second glass portion provided in a portion inside the first glass portion, and the one of the sealing portions has a portion to which a compressive stress is applied”.

However, in the same field of endeavor, Kaneko discloses a sealing portion for a HP mercury lamp having a first glass portion extending from the luminous bulb (see Fig. 1 in view of Fig. 3) and a second glass portion 4 (see also Figs. 11 and 14) provided in a portion inside the first glass portion, and the one of the sealing portions has a portion to which a compressive stress

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is applied [due to the different glasses, see Col. 8, lines 2-5]. Kaneko teaches this structure makes possible to provide a highly pressure-tight lamp in which the sealed mercury does not condense near the discharge electrode, and to reduce the formation of cracks in the sealing portion (see paragraph [0038] and [0041]). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a first glass and a second glass to the sealing portion of Seki in order to provide a highly pressure-tight lamp in which the sealed mercury does not condense near the discharge electrode, and to reduce the formation of cracks in the sealing portion.

Regarding claim 5, Seki discloses to provide the heat retaining film 40 on the sealing portion. Seki is silent regarding said heat-retaining film being positioned within 10 mm from the border. However, Seki discloses to provide film 40 at different points of the sealing portion in order to control the temperature of that region (see Fig. 4A and respective description). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide said heat-retaining film being positioned within 10 mm from the border since Seki teaches to place the film in different regions of the sealing portion to control the temperature.

11. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko et al. (EP 0 903 771) in view of Fischer et al. (US 4,866,327).

Referring to claim 1, Kaneko discloses a HP mercury lamp (see at least Fig. 1) comprising a luminous bulb in which at least mercury 5 is enclosed, and a pair of sealing portions 2 that retain airtightness of the luminous bulb,

wherein at least one of the sealing portions has a first glass portion extending from the luminous bulb (see Fig. 1 in view of Fig. 3) and a second glass portion 4 (see also Figs. 11 and 14) provided in a portion inside the first glass portion, and the one of the sealing portions has a portion to which a compressive stress is applied [due to the different glasses, see Col. 8, lines 2-5]. Kaneko is silent regarding the limitation of “a heat-retaining film made of insulating material or a heat-retaining material being provided at least in a portion of the luminous bulb and sealing portions”.

However, in the same field of endeavor, Fischer discloses a HP lamp comprising a heat-retaining film made of insulating material or a heat-retaining material being provided at least in a portion of the luminous bulb and sealing portions (see Figs. 1, 3 and 4), and teaches this structure to reduce the thermal emission of radiation of the discharge vessel to such an extent that with smaller vessels dimensions, the connection power can be reduced (see Col. 1, line 65 to Col. 2, line 4). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a heat-retaining film, in order to reduce the thermal emission of radiation of the discharge vessel to such an extent that with smaller vessels dimensions, the connection power can be reduced.

Referring to claim 6, Kaneko-Fischer discloses the heat retaining film being made of alumina (see '327, Col. 3, lines 46-47).

12. Claims 2, 3, 13, 14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko-Fischer as applied to claim 1 above, and further in view of Kanzaki et al. (US 2003/0048076).

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In regards to claims 2 and 3, Kaneko-Fischer discloses the claimed invention except for the limitation of the amount of enclosed mercury being 300 mg/cm^3 , and a bulb wall load being 80 W/cm^2 or more.

However, in the same field of endeavor, Kanzaki disclose a HP lamp and teaches that by providing mercury in an amount of 300 mg/cm^3 , a more suitable light source for a projector device can be implemented; and by providing a bulb wall load being 80 W/cm^2 or more the thermal condition for vaporization of mercury is adequately met during lamp operation (see at least paragraphs [0053] and [0056]). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide mercury in an amount of 300 mg/cm^3 , and a bulb wall load being 80 W/cm^2 or more in order to obtain a suitable light source for a projector device and to adequately meet the thermal condition for vaporization of mercury during lamp operation.

In regards to claims 13 and 14, the claims are rejected for the reasons stated in the rejection of claim 3.

In regards to claim 17 and 18, Kaneko discloses a reflecting mirror.

13. Claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathews-Bergman as applied to claim 7 above, and further in view of Kanzaki et al. (US 2003/0048076).

Regarding claim 13, Mathews-Bergman discloses the claimed invention except for the limitation of the amount of enclosed mercury being 230 mg/cm^3 or more. However, in the same field of endeavor, Kanzaki disclose a HP lamp and teaches that by providing mercury in an

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amount of 300 mg/cm^3 , a more suitable light source for a projector device can be implemented (see at least paragraph [0053]). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide mercury in an amount of 300 mg/cm^3 , in order to obtain a suitable light source for a projector device.

Regarding claim 15, Mathews-Bergman discloses an outer tube made of translucent material is provided around the bulb such that the outer tube is apart from the luminous tube (see at least Fig. 2 of '469).

14. Claims 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaneko-Fischer as applied to claims 1 and 3 above, and further in view of Obara (JP 62-262355).

Referring to claims 12 and 16, Kaneko-Fischer discloses the claimed invention except for the limitation of a coil having at least one metal selected from the group consisting of Pt, Ir, Rh, Ru and Re being wound at least in a portion of the electrode rod that is buried in the at least one of the sealing sections.

However, Obara discloses a lamp having a coil of Ru wound around a portion of the electrodes buried in the sealing portions (see Fig. 1), wherein the Ru serves to improve the starting characteristics and luminous flux properties (see Abstract). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a coil of Ru wound around a portion of the electrode rod in order to improve the starting characteristics and luminous flux properties.

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15. Claims 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuti et al. (US 6,211,616) in view of Kanzaki et al. (US 2003/0048076).

Referring to claim 20, Takeuti discloses the enclosed amount of mercury being 300 mg/cm³ or more (see Col. 3, lines 5-6) but is silent regarding the limitation of a bulb wall load being 80 W/cm² or more.

However, in the same field of endeavor, Kanzaki disclose a HP lamp having mercury in an amount of 300 mg/cm³, and teaches that by providing a bulb wall load being 80 W/cm² or more the thermal condition for vaporization of mercury is adequately met during lamp operation (see at least paragraphs [0053] and [0056]). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a bulb wall load being 80 W/cm² or more in order to adequately meet the thermal condition for vaporization of mercury during lamp operation.

Referring to claims 21-23, Takeuti discloses the reflecting mirror without a ventilation hole. Takeuti further discloses various embodiments with different Hg pressure and wattage (see at least Col. 3, lines 5-6; Col. 5, line 21 and Col. 6, line 3), but is silent regarding the size of the radiation surface. However, it has been held that a change in size is generally recognized as being within the level of ordinary skill in the art. Thus, it would have been obvious to one having ordinary skill in the art to provide a radiation surface or different sizes (e.g. 25, 40 and 55 cm²), since such a modification would have involve a mere change in the shape of a component.


Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to German Colón whose telephone number is 571-272-2451. The examiner can normally be reached on Monday thru Thursday, from 8:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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